

Demand is growing and salaries are rising for tech workers with the right skills. Our survey of more than 3,500 IT professionals reveals which jobs are hot — and which are not.

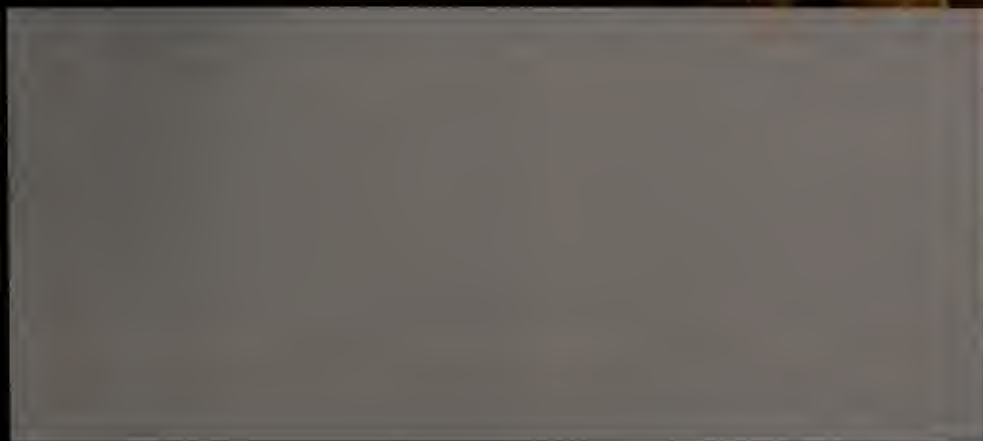
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P.O. Box 9171
492 Old Connecticut Path
Framingham, MA 01701-9171
(508) 879-0700
Computerworld.com

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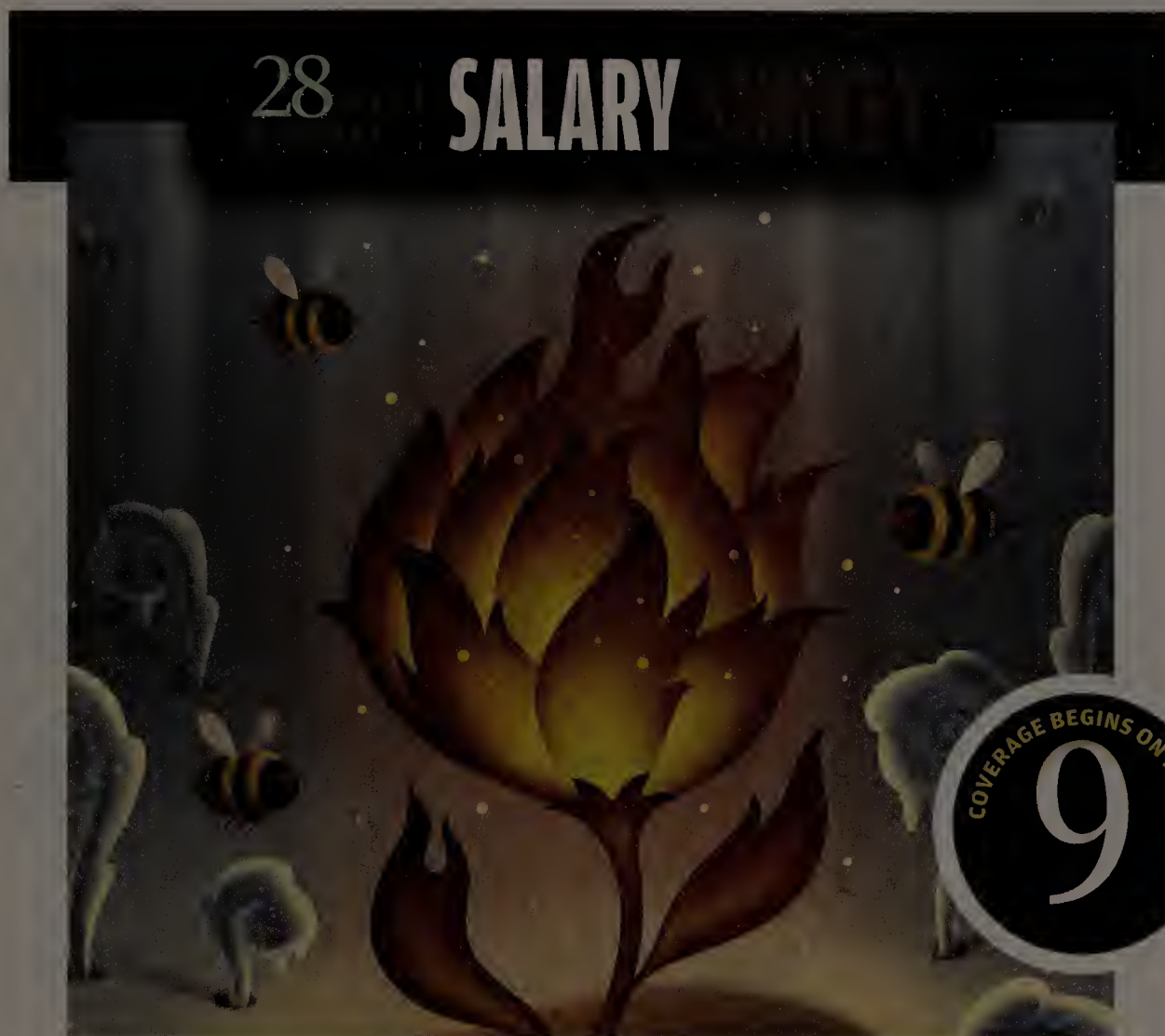
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Pat McGovern (1937-2014) is remembered as a compassionate and optimistic IT visionary.

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WEARABLE COMPUTING

Makers of Wearable Systems Woo Coders

GOOGLE AND SAMSUNG are trying to convince developers to create apps for their respective wearable systems.

Google announced a developers preview of Android Wear, its version of Android for wearable devices, just a day after Samsung announced a Tizen software development kit for building Gear smartwatch apps.

Google hasn't announced smartwatch hardware, but has indicated in videos posted on its blog that developers could use a voice-activated approach to Android Wear watches that interact with other devices, such as smartphones.

Samsung's Tizen gambit is initially meant to encourage the development of apps for its Gear 2 and Gear 2 Neo smartwatches.

It's clear that both Samsung and Google want to woo developers, but the company likely

to be the most successful is Apple, according to analysts. Still, both Google and Apple "currently own the hearts and minds of developers," said Patrick Moorhead, an analyst at Moor Insight & Strategy.

But others aren't counting out Samsung and its probable goal of using Tizen for a range of products. The lightweight operating system is likely to be the company's ticket into a larger world of embedded computing systems in a variety of devices — even refrigerators, said analyst Jack Gold of J.Gold Associates.

In the battle of ecosystems that's taking shape as the industry moves to wearables, "the jury is still out on what it will take to win," said Carolina Milanesi, an analyst at Kantar Worldpanel.

— Matt Hamblen

IT CAREERS

Hiring of Foreign Students Without H-1Bs Skyrockets

A skyrocketing number of U.S. employers are taking advantage of a six-year-old program that allows them to hire foreign STEM students for up to 29 months without an H-1B visa.

When the Optional Practical Training (OPT) program extension for students in science, technology, engineering or math programs was ratified in 2008, the U.S. approved 28,500 OPT applications.

Last year, the U.S. approved more than four times that number of OPT applications — 123,000, according to a Government Accountability Office report.

The GAO found OPT officials who said the program is "at risk for fraud and noncompliance," in part because it enables foreign students to work in the U.S. "for extended periods of time without obtaining a temporary work visa."

The OPT program doesn't have the same rules as the H-1B program, such as a mandate that employers pay prevailing wages.

John Miano, founder of the Programmers Guild, which was one of the parties that unsuccessfully challenged the 2008 OPT extension in court, said OPT employees "are cheaper because

the employer does not have to pay Social Security and Medicare taxes."

The GAO report recommends that U.S. immigration officials do more to ensure that colleges and employers comply with OPT rules.

— PATRICK THIBODEAU

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BETWEEN THE LINES

By John Klossner



Micro Burst

Chinese PC maker Lenovo will pay Unwired Planet

\$100 MILLION

for patents related to 3G, 4G and other technologies.

E-HEALTH

IBM's Watson Studies Genes in Cancer Research

IBM's Watson supercomputer is being used to help solve the mysteries of brain cancer by examining individual genetic mutations.

"When you do whole-gene sequencing, you get a very complete picture of the mutations in a specific patient. It is critical to be able to translate that information into something an oncologist can understand," said Raminderpal Singh, an IBM Research business development executive.

The New York Genome Center will use Watson to search for mutations in patients' genes that may be referenced in genomic databases and in medical literature.

The patients being studied have glioblastoma, an aggressive brain cancer that kills more than 13,000 people in the U.S. each year.

Researchers do face some challenges when it comes to adapting Watson to larger jobs such as this one, however.

In particular, the search technique of entity disambiguation and matching, which connects different descriptions of a single entity, may need some refinement.

Singh said that Watson will learn over time and get better at providing relevant information.

— JOAB JACKSON,
IDG NEWS SERVICE

EMERGING TECH

Computing Set for Quantum Leap

DESPITE THE COMPLEXITIES of creating quantum computers, D-Wave Systems, a company based in Burnaby, British Columbia, claims to be building them. And NASA, Google and Lockheed Martin are testing them.

Quantum computers could help researchers who are seeking cures for cancer, developing advanced cryptographic systems or searching for distant planets. They also could be used to simulate the way ongoing political and military situations could play out.

To achieve this promise, quantum systems rewrite the rules of how computing works.

Classic computers use bits — ones and zeroes — for processing instructions, and they work based on a linear series of instructions. A quantum computer combines computing with quantum mechanics.

One of the rules of quantum mechanics is that a quantum system can be in more than one state at once. Each bit in a quantum machine — known as a qubit — can be both a

one and a zero. It's not known what the qubits are until they begin to interact — or entangle — with other qubits, when they calculate all the possibilities at the same time.

However, a debate has erupted over whether D-Wave's computer performs any better than classic computing or whether it's even a quantum computer at all.

D-Wave CEO Vern Brownell said it simply can't be proved. "These are such complex systems they can't be modeled by all the computers in the world put together," he explained.

But Paul Benioff, who is credited with being the first person to apply the theories of quantum mechanics to computers in the early 1980s, has his doubts about D-Wave's system being a true quantum machine.

"It could be a step there, or it's an offshoot of the right way to go," said Benioff, adding that it could be 20 to 50 years before anyone is able to get a lot of qubits to work together.

— Sharon Gaudin



Pat McGovern, pictured at the McGovern Institute for Brain Research at MIT, first published *Computerworld* in 1967.

Pat McGovern: An IT Industry 'Catalyst'

The founder of Computerworld, IDC and IDG actively led the successful IT-focused company for 50 years, until his death. By Patrick Thibodeau

IN JUNE 1967, Patrick J. McGovern published the first issue of *Computerworld*, which he created to focus solely on the needs and experiences of technology users.

Computerworld's early headlines about disk drive failures, lost data and troubled tech products upset executives at vendor companies selling IT products.

"They said, 'You are the enemy of our industry,'" McGovern recalled in an August 2000 interview. "We put out the publication almost without any ads at all for the first six months."

McGovern, who died March 19, was an editor, publisher and entrepreneur who 50 years ago founded the global publishing and

market research organization that later became known as International Data Group.

He created International Data Corp. in 1964, three years before *Computerworld's* launch, to fill a clear need by IT vendors and corporate and government users for technology market data.

It was an interesting time in the tech industry — the era of Cobol, the IBM System/360, and other mainframe and midrange systems from many vendors now long gone.

Bill Gates was in secondary school. The first meeting of the Homebrew Computer Club, where Steve Wozniak got some of the ideas that would help make Apple a success, would not be held until 1975.

McGovern formed his business ideas in an era when IT was called data processing. The role of computing in business was accelerating, but the number of IT professionals was small, on the order of 300,000.

"The data processing manager was sort of the punch card guy and wasn't thought much of," said Drake Lundell, editor of *Computerworld* from 1968 until the early 1980s.

McGovern first worked in IT publishing as a student at MIT, when he got a part-time editorial job at an early computer magazine called *Computers and Automation*. He started working there full time after graduating in 1959.

Working at *Computers and Automation* gave McGovern access to tech executives and thought leaders, which he relished.

At one meeting with the head of Univac, the No. 2 computer company at the time, McGovern observed that the company was investing millions of dollars in new technology development with “no knowledge about what the needs of the market were.”

Univac officials concurred, saying he was “100% correct,” he recalled. That insight spurred him to create IDC.

First Tech Weekly

When he started publishing *Computerworld*, McGovern realized he needed to make speed a priority so he could meet IT user demand for timely information. Most computing publications at the time were monthly; *Computerworld* would be a weekly.

Running a national weekly newspaper wasn’t easy in the pre-Web days.

One year, a major snowstorm shut down Boston, where *Computerworld* was based. Staffers were “pulling an all-nighter” to get the publication out when McGovern arrived at the office and asked, “What can I do to help?” Lundell recalled. “I said go get pizza, and he did.”

Lundell believes that *Computerworld* helped empower data processing workers and gave them the confidence to think of themselves as IT professionals.

In 1983, George Colony founded Forrester Research. Though the firm would compete with IDG, McGovern offered his new rival business advice.

“It just struck me,” said Colony, now Forrester’s CEO, “how magnanimous and helpful he was.”

“[McGovern] was one of the catalysts of the computer industry in the United States,” said Colony. With his various businesses, McGovern “was building the intellectual and knowledge base that everyone was riding. Essentially, he’s a massive figure.”

Paul Gillin, editor in chief of *Computerworld* from 1987 to 1999, remembers McGovern well.

“Leo Durocher said nice guys finish last. I always thought McGovern proved that wisdom wrong,” Gillin wrote in an email. “One of the most remarkable things about Pat is that everybody loved him. I honestly can’t remember anyone ever saying a cross word about him. Pat was honest, compassionate and relentlessly optimistic.”

He recalled that McGovern sent complimentary memos to employees on stationery adorned with little rainbows. The memos “were an IDG fixture,” said Gillin. “He read the publications thoroughly each week and fired off several congratulatory notes each week. People would pin those notes to their cubes like trophies. I still have mine!”

“Shortly before I joined IDG in 1982, I read a profile in the *Boston Globe* that said that McGovern personally visited every U.S. employee to deliver the Christmas bonus,” said Gillin. “I couldn’t believe it, but a few months later there he was.”

Describing McGovern as “an exceedingly modest man,” Gillin recalled McGovern chatting with a *Computerworld* staffer who mentioned that she was planning to paint her house. “Pat offered to come over and help. ‘I’m a great paint scraper,’ he said. I have no doubt that if she had taken him up on his offer he would have shown up, scraper in hand,” said Gillin.



A former employee remembers Pat McGovern as being “honest, compassionate and relentlessly optimistic.”

460 Websites, 200 Mobile Apps

Over a span of 50 years, McGovern oversaw IDG’s launch of more than 300 magazines and newspapers and championed the expansion of IDG’s network to include more than 460 websites, 200 mobile apps and 700 events worldwide. Today, IDG brands are found in 97 countries and include CIO, CSO, *Computerworld*, GamePro, IDC, IDG Connect, IDG TechNetwork, IDG World Expo, InfoWorld, Macworld, Network World, PC World and TechHive.

In 1980, McGovern established one of the first joint ventures between a U.S. company and one in the People’s Republic of China, and in 1992, he established IDG Technology Ventures, one of the first venture capital firms in China.

In recognition of his great contribution to China’s information industry and venture capital field, McGovern was awarded the International Investment Achievement Award at the CCTV 2007 China Economic Leadership Award ceremony in Beijing. It was the first time the award was given to a foreign investor.

He also gave back — a gift of \$350 million from McGovern and his wife, Lore, in 2000 launched the McGovern Institute for Brain Research at his alma mater, MIT.

The McGoverns envisioned an institute whose ultimate goal would be to understand the human brain in health and disease.

In 2011, plans were announced to strengthen the institute’s collaborations with colleagues in China through the establishment of three new IDG-McGovern Institutes at Tsinghua University, Peking University and Beijing Normal University. ♦

The IDG News Service contributed to this story.

“[McGovern] was one of the catalysts of the computer industry in the United States.”

FORRESTER RESEARCH

THE Grill

William Keating

This cybersecurity-focused lawmaker wants cross-sector data sharing.

What's your favorite IT gadget?

"My iPad. There's just so much information there, it's so accessible. I use it all the time for my job."

What are you reading now?

"A lot of bills and *The Watchman's Rattle*, by Rebecca Costa. It gives you an overview of the challenges we have and how technology changes things and how technology can be a salvation for some of our problems."

Are you ever unplugged?

"As I travel, sometimes; it happens involuntarily. But, with an iPhone in the U.S., no — unless I'm near salt water."

What do you do in your spare time? "When I can, I golf."

PHOTO COURTESY OF THE OFFICE OF CONGRESSMAN KEATING



THE YEAR started with national attention once again focused on major security breaches, this time at Target and Neiman Marcus. Such news is putting more pressure on Congress to take action, with some analysts speculating that cybersecurity could become a hot-button topic in this year's midterm elections and in the 2016 presidential campaign. Rep. William Keating (D-Mass.), who sits on the House Cybersecurity, Infrastructure Protection and Security Technologies Subcommittee, spoke late last year at the Boston-based Advanced Cyber Security Center's annual conference. Here, he talks about what needs to be done now to protect the U.S.

What do you see as the biggest cybersecurity threat? It's the attack on the infrastructure, our economic infrastructure, because the effects it would have on our country would be enormous. An attack on a financial institution, a big financial institution, for even a limited period of several hours could threaten the economic viability of that firm and would have a domino effect on all the other financial institutions, not just in the U.S., but in the world and on the stock market. You'd see that

threat materialize in a form we've never seen before, and that would spill over to our national security. That kind of attack being successful would be devastating.

What's the federal government's role in

cybersecurity? I think the Department of Homeland Security has to be more involved; we have to realize this is both a national and international problem. I just came back from the Munich Security Conference, where the EU and other countries participate in security issues. The EU has a system with mandated requirements of information sharing and technology sharing among companies and government. In the U.S., those efforts have not been successful. So one thing we can do now is move in the same direction that the Advanced Cyber Security Center is moving: a bottom-up approach where major companies and entities share cross-sector threat information, and they do it because they have agreements protecting privacy. Those of us in Congress have to try to reconcile the European approach with the U.S. approach.

What would sharing do? If there's a major breach of a financial firm, if that's not shared and reported for hours, that limits the ability to defend against it or stop it. With real-time sharing, the minute there's a breach, it flows cross-sector and immediately results in defenses working to stop it. Having the Department of Homeland Security play a greater role would ease some of the civil liberties concerns. It can become a bridge to coordinating with Europe and other parts of the world.

What's next for Congress regarding cybersecurity and possible legislation?

The first thing is let's settle the jurisdictional disputes between Homeland Security, intelligence [agencies] and the judiciary. That's a complicating factor, and that was cited about 9/11 on terrorist threats. That's a problem, because we have competing pieces of legislation from different committees. We also have to have a sense about how much can be done from a mandatory standpoint. That's where trying to encourage these bottom-up models works, and they're being done already.

One thing I've pushed for is to have Homeland Security cooperate with our universities and academic facilities. There's great opportunity to have these universities guide us through this. And another area is to make a greater talent pool of cybersecurity experts. We don't have enough in our government agencies, and we don't have enough to innovate in the private sector. The president's directive and executive order is already generating some cross-sector collaboration, but it's limited. It's just an order. Congress is going to have to continue to move forward on this, whether it's mandatory, which faces uphill sledding, or voluntary, such as what they're doing with the Advanced Cyber Security Center in Boston, or a hybrid. We have to continue this and put it on the front burner. We know the threat is real and it can happen at any time.

Some analysts and observers have said that while cybersecurity awareness is at its height in Congress, it continues to take a back seat. What will it take to move cybersecurity to the front of the line for action? It's already hit that level of concern with the average person. But what they don't see is what they have to pay for [security], what retail and financial institutions and government has to pay. The [Edward] Snowden breach is estimated in the billions, in terms of what it will cost our government. As we go forward, I think people understand the urgency of this. It shouldn't take a major breach or episode to spring action forward.

You've also talked about the balance of privacy with cybersecurity laws and policies. How does privacy fit into the cybersecurity debate?

That's going to be one of the barriers to getting a comprehensive plan together, and that's why we have to be open to immediately supporting the approach that the Advanced Cyber Security Center has — that bottom-up approach — but realize, too, that there's going to have to be some aspect of mandatory [requirements]. One way to balance this is to have the Department of Homeland Security play a bigger role. Because I do think that's less military, less intelligence-centered, and I think it will ease some of the civil liberties concerns.

Has working in the area of cybersecurity changed how you handle your own data?

Whether I want it to or not, it does. I've had to learn all the security we have here in Congress. It is burdensome. I've learned when I go to other countries [what security] differences there are. When I went to Russia, I left my [own] phone and laptop here and took another phone that when I got back had to be scrubbed. I'm not a technical expert. But the protections put into place, I have to live with and work with.



“With real-time sharing, the minute there's a breach, it flows cross-sector and immediately results in defenses working to stop it.”

— Interview by Computerworld contributing writer
Mary K. Pratt (marykpratt@verizon.net)



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28th Annual Report

SALARY 2014 SURVEY

IT pros with the right mix of technical skills and business savvy are in demand. Our survey of more than 3,500 tech workers reveals who's making good money — and who's not.

Check out our interactive tool to see compensation data for more than 50 IT job titles. computerworld.com/salary

IT Pay: All the Numbers

'On' All the Time

What IT Workers Want

WHO'S HOT.

[Who's Not.]

A shortage of workers with both technical and business skills has employers scrambling and (some) IT pros smiling. **BY STACY COLLETT**



IT'S POACHING SEASON at Truven Health Analytics. The Santa Barbara, Calif., company has been up to its eyeballs in new projects since the federal government's Medicaid business systems group enlisted Truven's help to improve its Web-enabled reporting systems.

With business booming, Randy Lum, director of Truven's software and database design group, needed two highly skilled developers — fast. But the rules of

supply and demand were not in his favor. Nearly half of all managers who are in the hiring mood are looking for developers, according to *Computerworld's* 2014 Salary Survey. So Lum took a tried-and-true course of action.

"I steal people," he says, "people that I've worked with in the past that I know are good. I'm not shy about that. If I can offer them something they're after, I won't hesitate." In fact, five out of seven of his direct reports — all senior-level computer



scientists — are former colleagues. Most of them are looking for job security, Lum says, but a competitive salary doesn't hurt either. Right now his staffers earn between \$128,000 and \$143,000 per year. Their unique skill sets make them well worth the price, he adds.

"It is difficult to find developers with the right mix of technology skills for what we do," he explains. "We're not a large group, and my development staff is expected to have a wide range of skills — so they can work on any part of any project, ranging from database to the Web interface and everything in between."

IT employees who participated in *Computerworld's* annual salary survey share that view of the market. They say a shortage of IT workers with the right skills, an uptick in new projects and a shift in the way IT works with business units have given them renewed optimism about IT careers — though salaries and bonuses are advancing slowly.

Compensation and Job Security Inch Up

IT salaries continue to chug along, with pay increases averaging a modest 2.1%, according to the survey of 3,673 IT workers. Bonuses are up by an average of only 0.7%, slightly lower than the 0.9% increase seen in 2013.

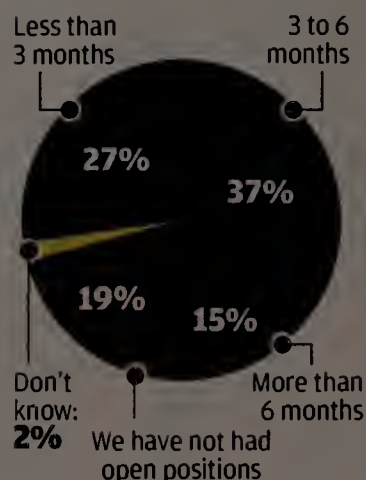
On the bright side, companies are spreading pay increases among more IT workers. Some 60% of the respondents reported a raise, while only 8% reported a pay cut. That's slightly better than last year, when 57% reported raises and 9% reported pay cuts, but well above 2012, when less than half reported a raise.

As the economy has improved, the percentage of respondents who feel secure in their jobs has also inched up, from 57% in 2012 to 59% in 2013 and 61% this year. Workers are also more optimistic about IT as a career: In 2012, only 29% said they believed that a career path in IT and the potential for salary advancement was as promising as it was five years prior, but that percentage increased to 38% in 2013 and to 42% this year.

The rising optimism among IT pros coincides with an increase

POSITIONS HARD TO FILL

In the last 24 months, how long has it taken for your IT organization to fill any unfilled open positions?



BASE: 1,369 RESPONDENTS WITH MANAGERIAL TITLES

in the number of open positions and a shortage of workers with the skills to fill those jobs. But while some people are in high demand, others find themselves sitting on the sidelines.

Hot, Hot, Hot

For the third year in a row, application development was the most sought-after skill: 49% of all managers who expect to hire this year said it was on their wish list.

Help desk and IT support skills ranked second, with 44% of managers expecting to fill jobs in those areas this year. That's up from 37% in 2013 — the biggest year-over-year increase in our survey.

Not surprisingly, some organizations are having a tough time meeting salary demands.

It took six months to find a do-it-all help desk staffer to meet the growing technology demands of the Monadnock Regional School District in Swanzey, N.H., says Neal Richardson, the district's director of technology.

"We had very highly qualified candidates; we just couldn't meet their salary requirements," which were \$15,000 to \$20,000 higher than the district could pay, he recalls. "We ended up going with [someone with] less experience."

Public school IT professionals once accepted lower salaries in return for perks such as low-cost insurance and summers off, Richardson says. But school boards are whittling those benefits away. For instance, IT jobs are now year-round positions, he says.

Third place on the list of the most in-demand skills saw a tie between business intelligence skills and database analysis and development expertise, with 29% of hiring managers saying they planned to increase staffing in those areas.

"All things data" are red hot, says David Foote, CEO at Foote Partners, an IT labor market analyst firm. Titles such as data administrator, database developer and database architect are grabbing recruiters' attention, especially for positions in larger companies.

Rounding out the top 10 in-demand skills among 2014 survey respondents were security, network administration, networking, cloud computing, Web design and development, and data management.

The Skills Shortage Is Real

IT JOB WATCHERS AND HR CONSULTANTS agree that there's a real skills shortage in the "hot" IT specialties because the number of projects that involve those types of work is exploding. And with many other IT positions, employers want the "perfect candidate" — someone with a mix of tech expertise, problem-solving abilities and people skills. That's a tall order that keeps positions from being filled. Companies don't want the hard-core techie that sits off in the back room. They want the person that has those tech skills, but also

someone they can put in the boardroom or in front of the business group," says John Reed, senior executive director at Robert Half Technology. "There aren't that many of those types of people."

Today, IT workers are "being thrust into a seat at the table," adds David Foote, CEO of Foote Partners. "The problem is, that seat requires a very different IT organization" — one that can move with speed and agility — and therefore a new hiring philosophy is also needed. For instance, Foote says, "the best companies are hiring software engineers who are also analysts because it's more efficient. You're doing it quicker, and it's strategic as well as tactical."

— STAFF WRITER

Headhunter Calls, Unfilled Positions

With demand outpacing supply for many positions, more than half of our survey takers (54%) said a headhunter has contacted them in the past year.

"I get a lot of job offers from staffing companies and corporations that need a ton of DBAs and SQL administrators," says Erin Baker, CIO at payroll processing firm Fastpay Payroll in Lubbock, Texas. He says he receives five to 10 calls a year from recruiters, and "most often they're looking for SQL DBA or SQL programming skills."

Though some offers have been tempting, Baker says no company has been able to beat the perks of his current job, which include weekends off, flexible hours and the opportunity to work from home.

David Fitzgerald, network and security engineer at Ariad Pharmaceuticals in Boston, says he gets a call or an email from a recruiter "probably once a day." But like Baker, he doesn't see himself leaving his current employer anytime soon. "It's a small cancer-based pharma. They're doing good things for people," he says. "I have a great deal of autonomy. I can make a difference."

(Many survey respondents ranked intangible factors such as recognition for good work and a positive corporate culture as important aspects of their jobs. See "What Do IT Workers Want?" on page 24.)

All of those recruiter calls point to a growing challenge facing employers: It's taking them longer to fill open positions. Half of the managers surveyed by *Computerworld* said that it has taken at least three months to fill open IT positions in the last two years.

Lance Abla, principal systems engineer and specialist SE manager at EMC, spent more than six months finding the right candidates for three positions in EMC's presales consulting group. He says he's not seeking one specific skill but a wide range of knowledge in storage, networking, operating systems and "everything middleware and below."

"They have to be able to talk intelligently to C-level execs and customers, and make a case for why we should assist that customer in not only the services and software, but the hardware that they use to run their IT platforms. It's pretty hard to find people who have that breadth and depth of knowledge," not to mention the personality and professionalism that's required for the job, he says. "That quality where everyone perks up when they speak, or when they enter a room they have this presence — I can't teach those things."

While positions remain unfilled, the projects are piling up for current IT employees. Some 26% of respondents said that in the past year their working conditions were significantly affected by unfilled open positions, compared to 20% in 2013. One-third of survey takers said they were affected by new understaffed projects.

Solutions architect senior manager Dane Bamburly received a 3% raise this year from his employer, Cox Enterprises, the same pay increase he had last year — but he also got an 18% bonus for his efforts on two major internal cross-divisional projects that required him to work an extra five or six hours several days a week.

"In my immediate department we have a shortage of employees right now," says Bamburly. "I'm trying to procure funding to add additional staff."

Bamburly, who oversees a staff of five, says he fields eight to 10 phone calls a year from headhunters looking to poach employees with technology strategy skills — especially people focused on mobility and cloud. "Those are the buzzwords of today," he says.

But he chooses to work the extra hours and stay with the company because he likes his team. "We have a good group of

Tips for Keeping The Talent You Have

WHILE MANY IT WORKERS are choosing to stay with their current employers for now, the trend may not last much longer. "Recruiters are very active now,"

says David Foote, CEO of Foote Partners, "so companies that have never had reten-

tion problems are really having problems now."

John Reed, senior executive director at Robert Half Technology, says companies can encourage employees to stay by creating an environment where open communication is welcomed.

He advises managers to build career road maps for the key people on their teams and then offer them the training and experience they'll need to reach their goals.

"Managers also have to sit down with people on their teams and get a gauge on how satisfied they are with their jobs," he adds. "Pay attention to work-life balance. Most managers want to address concerns before [employees] come in and just resign."

— STACY COLLETT

MODEST PAY GAINS CONTINUE

Salaries and bonuses are inching up, and more people are getting raises.

	2012 4,337 RESPONDENTS	2013 4,251 RESPONDENTS	2014 3,673 RESPONDENTS
Average increase in salary	2.1%	2.3%	2.1%
Average increase in bonus	-1.1%	0.9%	0.7%
Received a raise in the past year	47%	57%	60%

A ROSIER OUTLOOK

Do you believe that a career path in IT and the potential for salary advancement is as promising today as it was five years ago?

	2012 4,337 RESPONDENTS	2013 4,251 RESPONDENTS	2014 3,673 RESPONDENTS
It is as promising today	29%	38%	42%
Not as promising	53%	44%	39%
Unsure	18%	18%	19%

people, very collaborative, and a positive environment," he explains. "The career and growth potential so far have been good. If you have a good working environment with people you get along with, that's always a big plus."

Skills Cooling Off

Even as the need for some tech skills rises or stays steady, demand for others is cooling off. Staffing firm Robert Half Technology sees the biggest declines in mainframe and midrange computing skills like Cobol and AS/400 as the migration away from mainframe computing environments to Web and mobile systems continues, says John Reed, senior executive director at RHT.

Mainframes aren't disappearing, of course, but employers won't be paying top dollar for mainframe support. "I have mainframe guys on my team who clearly have not begun to recognize that they haven't maintained skills that are marketable outside of a small subset of the world," Ablaw says.

And while quality assurance is still very important in the software development life cycle, demand for QA specialists has slumped a bit as organizations are asking software developers to do their own QA work. As a result, "we have seen a decrease in [demand for] black box testing skills to a degree," Reed says.

Demand is also declining for skills tied to other technologies that seem to be on the way out, such as Windows XP, BlackBerry OS and desktop publishing tools used by technical writers, Reed says.

Nonetheless, Ablaw says, many job seekers still tout outdated experience. "There are people saying, 'I'm Microsoft certified and a good Windows server admin.' That was interesting five years ago, but not now," he says.

The same goes for many IT professionals who specialize in networking and operating systems. "You see people that have 'camped' there and haven't noticed the changes in the industry. Their résumés and experience show they've sat around and are now asking to be picked up and moved forward," Ablaw says. "It's not likely that I'm going to do that for them."

HOT SKILLS

What types of IT skills do you expect your organization to hire for in the next 12 months?

Application development	49%
Help desk/IT support	44%
Business intelligence	29%
Database analysis and development	29%
Security	26%
Network administration	24%
Networking	22%
Cloud computing	18%
Web design/development	18%
Data management	17%
Mobile application development	16%
Data mining/data warehousing	16%

BASE: 501 MANAGERS EXPECTING TO INCREASE IT HEAD COUNT IN THE NEXT 12 MONTHS; MULTIPLE RESPONSES ALLOWED

Changes in the skills that are in demand are happening more rapidly than ever, Ablaw warns. "You don't get five years to figure it out," he says. "You get months to figure it out."

In the last quarter of 2013 alone, the market values of some noncertified IT skills declined 10% or more, according to Foote. He says there have been notable declines in the value of a variety of disciplines, including application development specialties such as agile programming and rapid application development (RAD); Oracle application server and database expertise; skills related to e-procurement and other management processes and methodologies; Mac OS X expertise; LAN and IPX/SPX networking skills; expertise in systems such as VMware's vCloud, IBM's Tivoli, and SAP and other ERP applications; and e-commerce development specialties involving the use of Microsoft Commerce Server, XHTML MP and JavaBeans/EJB 3.0.

But Foote points out that "just because something's going down in value doesn't mean it's not desired; it just means that supply is catching up to demand."

Ablaw, who consults for EMC at dozens of large corporate IT departments in Texas, brings up yet another concern when it comes to keeping skills up to date: the danger that some IT roles might be removed from the

enterprise entirely.

"I've got a number of customers saying they want to be out of the IT business altogether in the next three to five years," he says. "They want their application development people to get what they need from a service or cloud provider, and then go develop the app without having a staff of people managing servers and storage."

Reed says such a shift would be premature for many companies, but IT professionals shouldn't ignore the possibility. "If you're in a role that will be impacted by [a technology trend] such as cloud, you must build that skill set out so you remain relevant in the job world," he says. "The IT jobs market is evolving. If both employer and employee don't evolve with it, you'll be left in the dust." ♦

Collett is a Computerworld contributing writer. You can contact her at stcollett@comcast.net.

How We Conducted the Survey

Computerworld's 28th annual IT Salary Survey was administered via the Internet.

The survey results include responses from both Computerworld print subscribers and visitors to Computerworld.com.

The collection of data began on Oct. 2,

2013, and concluded on Dec. 19. A total of 4,372 people responded to the survey. Of those respondents, 3,673 were employed full time or part time and were eligible to complete the entire survey. At the 95% confidence level, the margin of error for

this sample size is 1.6 percentage points.

Compensation figures for 2013 were calculated based on the percentage change reported by respondents.

MORE ONLINE: For a detailed look at the survey methodology, visit computerworld.com/14/salaries.

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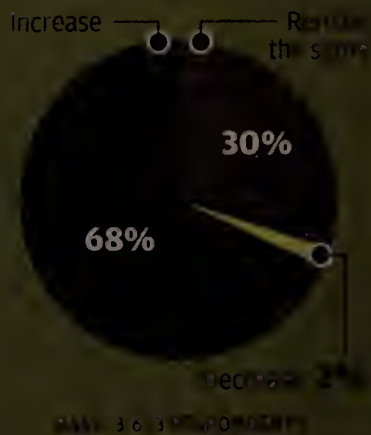
#ITFORTHEWIN



IT'S AMAZING WHAT I.T. WAS MEANT TO BE.

NO REST FOR
THE WEARY

Over the next 12 months
do you expect your workload
and responsibilities to



NEGATIVE FACTORS

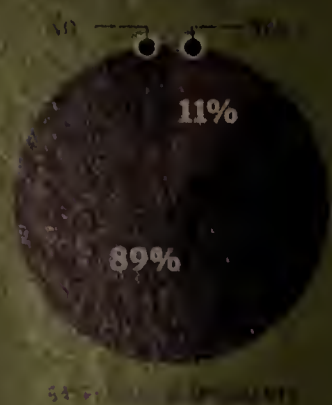
The top factors affecting
working conditions.

Increased workload	48%
Budget cuts	37%
New understaffed projects	33%
Unfilled open positions	26%
Salary freeze	22%
Hiring freeze	21%
Training cuts	17%
Permanent staff layoff	16%
Canceled project(s)	13%
Increased outsourcing	11%
Merger/acquisition	10%
Contract/consultant hires	9%
Contract staff layoff	7%
Unpaid work furloughs	6%
Increased hiring/staffing	6%

BASE: 3,617 RESPONDENTS
MULTIPLE RESPONSE ALLOWED

MORE WORK
WITHOUT MORE PAY

If you've been asked
to increase productivity
and/or take on new work,
has your salary been adjusted
to compensate for
the added workload?



Senior Management Positions

JOB TITLE	AVERAGE SALARY	AVERAGE BONUS	2014 TOTAL	2013 TOTAL	% CHANGE TOTAL COMP
CIO/vice president of IT	\$147,116	\$25,412	\$172,528	\$168,910	2.1%
Chief security officer	\$127,818	\$12,636	\$140,455	\$133,782	5.0%
Chief technology officer	\$144,019	\$26,944	\$170,963	\$171,264	-0.2%
Director of IT	\$110,485	\$10,288	\$120,773	\$118,662	1.8%
Director of systems development	\$143,747	\$16,400	\$160,147	\$156,309	2.5%
Internet technology strategist	\$127,826	\$21,500	\$149,326	\$141,819	5.3%

Middle Management Positions

Application development manager	\$108,274	\$9,515	\$117,789	\$115,460	2.0%
Communications manager	\$83,879	\$6,085	\$89,964	\$88,908	1.2%
Computer operations manager	\$90,029	\$6,559	\$96,588	\$95,532	1.1%
Database manager/data warehousing manager	\$114,807	\$11,604	\$126,411	\$123,273	2.5%
Help desk/tech support manager	\$82,609	\$3,962	\$86,571	\$85,552	1.2%
Information security manager	\$104,469	\$7,268	\$111,737	\$110,454	1.2%
IT manager	\$89,997	\$4,644	\$94,641	\$92,798	2.0%
Network manager	\$78,468	\$1,251	\$79,719	\$76,995	3.5%
Product manager	\$116,771	\$10,165	\$126,936	\$122,975	3.2%
Project manager	\$106,807	\$7,820	\$114,627	\$112,186	2.2%

Staff and Entry-Level Positions

Application developer	\$86,162	\$4,399	\$90,560	\$88,945	1.8%
Business intelligence analyst	\$79,058	\$5,909	\$84,967	\$81,980	3.6%
Communications specialist	\$65,288	\$2,660	\$67,948	\$67,145	1.2%

Staff and Entry-Level Positions

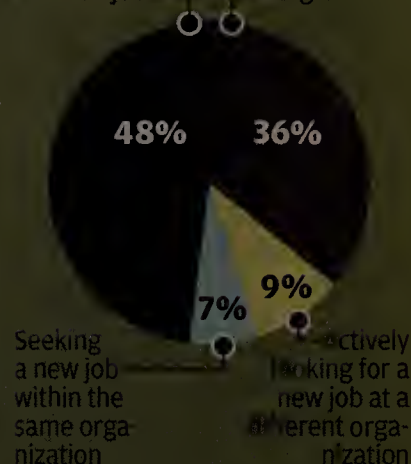
JOB TITLE	AVERAGE SALARY	AVERAGE BONUS	2014 TOTAL	2013 TOTAL	% CHANGE TOTAL COMP
Database administrator	\$88,571	\$3,725	\$92,296	\$90,784	1.7%
Database analyst	\$74,344	\$5,632	\$79,976	\$82,248	-2.8%
Database architect	\$113,889	\$8,444	\$122,333	\$120,961	1.1%
Enterprise architect	\$120,993	\$14,752	\$135,745	\$132,579	2.4%
Help desk/tech support specialist	\$51,295	\$1,484	\$52,779	\$51,320	2.8%
Information security specialist	\$88,170	\$7,209	\$95,379	\$93,929	1.5%
Network administrator	\$65,740	\$1,778	\$67,519	\$66,496	1.5%
Network architect	\$100,105	\$10,954	\$111,059	\$107,830	3.0%
Network engineer	\$82,992	\$4,735	\$87,727	\$84,292	4.1%
Programmer/analyst	\$73,463	\$1,570	\$75,034	\$72,916	2.9%
Project leader	\$101,398	\$7,727	\$109,125	\$107,320	1.7%
Quality assurance specialist	\$81,856	\$3,326	\$85,183	\$83,476	2.0%
Software developer	\$88,335	\$5,270	\$93,605	\$91,455	2.4%
Software engineer	\$97,035	\$5,343	\$102,378	\$100,477	1.9%
Storage administrator	\$91,932	\$3,416	\$95,347	\$93,131	2.4%
Storage architect/engineer	\$104,269	\$11,328	\$115,596	\$112,366	2.9%
Systems administrator	\$72,967	\$1,937	\$74,904	\$72,904	2.7%
Systems analyst	\$72,714	\$2,783	\$75,497	\$74,141	1.8%
Senior systems analyst	\$90,707	\$4,722	\$95,428	\$94,123	1.4%
Systems architect	\$110,124	\$6,872	\$116,996	\$114,119	2.5%
Systems programmer	\$100,063	\$4,360	\$104,423	\$102,597	1.8%
Technician	\$51,619	\$879	\$52,497	\$51,656	1.6%
Technology/business systems analyst	\$74,279	\$3,082	\$77,361	\$76,215	1.5%
Web developer	\$68,087	\$4,188	\$72,275	\$69,624	3.8%

SITTING TIGHT

Which one of the following best describes your job search status?

Not looking for a new job

Passively looking for a new job at a different organization



BASE: 3,673 RESPONDENTS

13 REASONS TO JUMP

Which factors would most influence you to change your job?

Salary increase	74%
Job security	38%
Better work/life balance	37%
Access to new technology projects	31%
Large sign-on bonus	30%
Organization stability	29%
More vacation time	26%
More training	24%
More responsibility	22%
New title	13%
Paid moving expenses	12%
Relocation	12%
Complete career change	11%

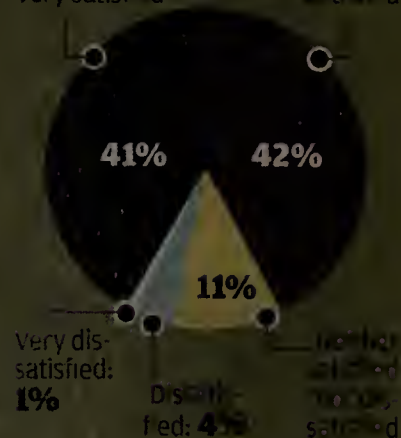
BASE: 3,673 RESPONDENTS
MULTIPLE RESPONSES ALLOWED

FEELING SATISFIED

How satisfied are you with your decision to pursue a career in IT?

Very satisfied

Satisfied



BASE: 3,673 RESPONDENTS
PERCENTAGES ROUNDED UP TO
100% DUE TO ROUNDING

A Sampling of Average Total Compensation by Region

JOB TITLE	New England	Middle Atlantic	South Atlantic	North Central	South Central	Mountain	Pacific
CIO/vice president of IT	\$194,731	\$210,836	\$197,182	\$149,589	\$145,169	\$154,273	\$169,545
Director of IT	\$133,849	\$133,963	\$121,435	\$112,090	\$111,496	\$102,960	\$135,916
IT manager	\$97,813	\$93,242	\$101,956	\$90,638	\$94,989	\$85,491	\$100,151
Project manager	\$104,833	\$109,671	\$127,812	\$108,008	\$100,111	\$117,000	\$126,857
Application developer	\$106,653	\$100,634	\$97,291	\$93,363	\$100,800	\$87,940	\$91,035
Help desk/tech support specialist	\$55,257	\$51,268	\$55,857	\$51,926	\$49,435	\$48,785	\$60,931
Network administrator	\$40,500	\$65,206	\$70,535	\$70,706	\$64,246	\$59,200	\$73,761
Programmer/analyst	\$102,140	\$68,014	\$76,889	\$72,061	\$79,175	\$82,765	\$90,322
Software engineer	\$126,555	\$117,686	\$100,986	\$97,467	\$95,500	\$103,569	\$124,535
Systems administrator	\$82,530	\$85,843	\$74,142	\$70,911	\$76,641	\$78,785	\$78,232
Systems architect	\$131,343	\$123,288	\$117,275	\$97,277	\$125,498	\$119,333	\$124,382
Technology/business systems analyst	\$76,240	\$75,860	\$78,005	\$75,661	\$75,123	\$63,308	\$94,011

GREEN TEXT: The total base for this job title in this particular region was fewer than 30 responses but more than 15. These figures should be used for comparison only, because they don't constitute a statistically significant sampling.

GRAY TEXT: The total base for this job title in this particular region was fewer than 16 responses. These figures should be used for comparison only, because they don't constitute a statistically significant sampling.

REGIONS

New England: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

Middle Atlantic: New Jersey, New York, Pennsylvania

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, Puerto Rico, South Carolina, U.S. Virgin Islands, Virginia, West Virginia

North Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin

South Central: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, Texas

Mountain: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming

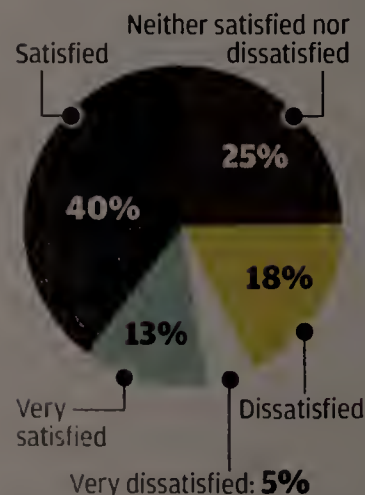
Pacific: Alaska, California, Hawaii, Oregon, Washington

Satisfaction Meter

NOTE: In some cases, percentages don't add up to 100 because of rounding.

MONEY

How satisfied are you with your total compensation package?

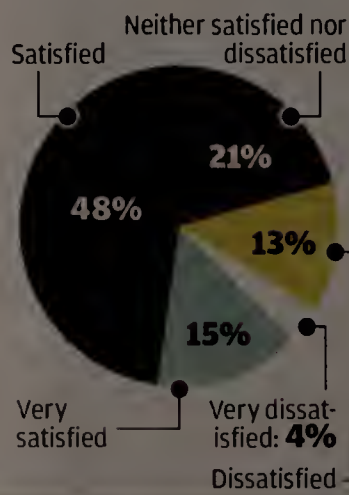


How did you feel 12 months ago?	
More satisfied	40%
Less satisfied	18%
The same	42%
Not in the same position	0%

BASE: 3,673 RESPONDENTS

CURRENT JOB

How satisfied are you with your current job?

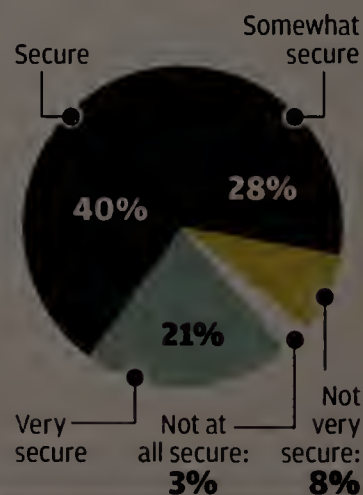


How did you feel 12 months ago?	
More satisfied	48%
Less satisfied	15%
The same	37%
Not in the same position	0%

BASE: 3,673 RESPONDENTS

JOB SECURITY

How secure do you feel your job is?

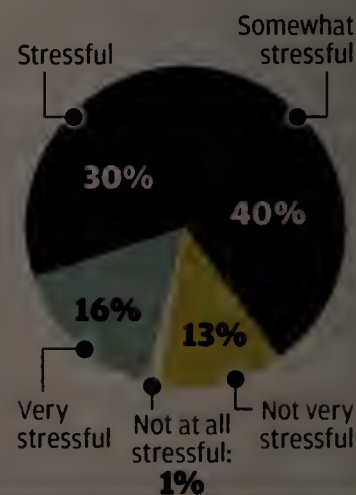


How did you feel 12 months ago?	
More secure	40%
Less secure	21%
The same	39%
Not in the same position	0%

BASE: 3,673 RESPONDENTS

STRESS

How stressful is your job?



How did you feel 12 months ago?	
More stressful	30%
Less stressful	16%
The same	54%
Not in the same position	0%

BASE: 3,667 RESPONDENTS

A Sampling of Average Total Compensation by Industry

CIO/vice president of IT	Director of IT	IT manager	Project manager	Help desk/tech support specialist	Network administrator
Legal/insurance/real estate \$226,206	Computer services/consulting \$158,131	Computer services/consulting \$123,262	Manufacturing (noncomputer) \$135,000	Finance/accounting \$64,438	Business services/consulting (noncomputer) \$81,900
Manufacturing (noncomputer) \$197,781	Retail trade \$146,731	Banking \$102,967	Finance/accounting \$124,000	Government \$58,545	Government \$71,657
Health/medical services \$175,829	Legal/insurance/real estate \$132,715	Legal/insurance/real estate \$102,760	Defense/aerospace \$119,375	Manufacturing (noncomputer) \$56,052	Health/medical services \$70,900
Finance/accounting \$174,475	Manufacturing (noncomputer) \$132,052	Government \$100,049	Telecommunications \$116,000	Legal/insurance/real estate \$55,499	Retail trade \$64,482
Education \$168,133	Finance/accounting \$126,938	Manufacturing (noncomputer) \$99,050	Government \$115,744	Energy/utilities \$53,014	Computer services/consulting \$63,367
Computer services/consulting \$148,500	Health/medical services \$113,598	Health/medical services \$90,177	Computer services/consulting \$115,082	Health/medical services \$51,030	Manufacturing (noncomputer) \$63,078
Government \$142,549	Government \$105,805	Wholesale trade \$80,357	Health/medical services \$103,981	Education \$48,473	Energy/utilities \$62,195
Banking \$123,000	Education \$101,315	Education \$75,313	Education \$86,305	Computer services/consulting \$45,052	Education \$58,780
Network engineer	Programmer/analyst	Software engineer	Systems administrator	Systems analyst	Technology/business systems analyst
Defense/aerospace \$109,000	Defense/aerospace \$97,949	Manufacturing (computer) \$121,291	Defense/aerospace \$89,464	Finance/accounting \$98,328	Finance/accounting \$100,489
Energy/utilities \$107,000	Legal/insurance/real estate \$93,811	Defense/aerospace \$118,202	Government \$80,468	Computer services/consulting \$95,845	Government \$83,635
Computer services/consulting \$93,714	Health/medical services \$86,864	Finance/accounting \$110,914	Entertainment/marketing/advertising \$75,931	Legal/insurance/real estate \$87,875	Manufacturing (noncomputer) \$79,718
Health/medical services \$84,125	Government \$79,573	Government \$108,232	Banking \$75,000	Defense/aerospace \$79,250	Computer services/consulting \$79,445
Banking \$83,125	Finance/accounting \$77,550	Computer services/consulting \$103,079	Computer services/consulting \$73,567	Health/medical services \$70,618	Retail trade \$74,300
Government \$80,138	Computer services/consulting \$68,000	Banking \$100,435	Manufacturing (noncomputer) \$73,467	Government \$70,214	Health/medical services \$71,018
Education \$71,145	Manufacturing (noncomputer) \$62,700	Manufacturing (noncomputer) \$97,556	Health/medical services \$71,824	Education \$66,075	Education \$66,663
Telecommunications \$70,333	Education \$54,251	Telecommunications \$77,861	Education \$59,948	Manufacturing (noncomputer) \$63,875	Transportation/logistics \$61,408

GREEN TEXT: The total base for this job title in this industry was fewer than 30 responses but more than 15. These figures should be used for comparison only, because they don't constitute a statistically significant sampling.

GRAY TEXT: The total base for this job title in this industry was fewer than 16 responses. These figures should be used for comparison only.



MICHAEL KIRVEN

Why 2014 Is the Year to Consider Going Solo

The real opportunities may no longer lie in the familiar full-time career tracks of the past.

SIGNS POINT to 2014 being a banner year for IT hiring. Yet technology professionals might do well to reconsider whether they want to follow traditional full-time career tracks. There's never been a better time to explore opportunities as a contractor — and the payoffs can

benefit both workers and employers.

The *Computerworld* 2014 Salary Survey highlights the strong economic outlook for IT staffers, with more respondents reporting raises than in previous years and fewer reporting pay cuts. In addition, more than half say they are satisfied or very satisfied with their total compensation.

Yet respondents do have some career concerns, including the challenges of keeping skills up to date and finding new positions worthy of their experience. Others worry that their career trajectories have flattened out.

At the same time, a recent survey by my firm, technology resourcing provider Mondo, found that 48% of businesses plan to hire more IT contractors than full-time staff over the next 12 to 18 months, and 32% expect to increase their annual IT contractor budgets over the same period.

These shifts show that while technology hiring is, thankfully, on the upswing, the real opportunities may no longer lie in full-time jobs.

Flexibility Is the New Stability

Often, an increase in the use of tech contractors gets chalked up to companies not wanting to commit to long-term, full-time employees. But what we're seeing at our firm, and among our clients, suggests that a big part of the shift toward contractors has to do with what job seekers want.

Tech professionals of all ages are increasingly interested in contracting. Generation Y workers entering the job market often don't want to feel tied down to a single company; they may have even seen parents lose jobs despite lifetimes of

professional loyalty. Older people, meanwhile, may be open to making a change because they're out of work or are in fear of being laid off.

For both groups, and many professionals in between, taking the reins of your own career can be financially and professionally rewarding, and it can provide you with the satisfaction of finding yourself in demand, no matter how business needs at an individual company may change.

Brave New World

Being a contractor isn't for everyone. It requires agility, the ability to market yourself as a brand, and not a little bit of bravery to take that first leap. However, many contractors find that myriad benefits come from cutting ties to conventional full-time employment, including a renewed excitement for their work as well as opportunities to contribute to high-profile projects and keep their skills current.

For those considering a change, many cities offer networking groups to connect IT contractors and tech employees, or you can mine your LinkedIn network to find former colleagues now working as full-time independent contractors. A contracting mentor can share valuable tips for setting hourly rates, securing benefits and staying connected to new assignment opportunities.

It's an ideal time to give contracting a try. With companies hoping to grow innovation while keeping workforces flexible, there are more opportunities than ever, making contracting an increasingly attractive way for talented tech pros to not only survive, but thrive. ♦

Michael Kirven is founder and CEO of Mondo, a leading technology and digital marketing resource provider. He can be reached at michael.kirven@mondo.com or on Twitter (@mkirven).



'ON'

All the Time

.....

Around-the-clock accessibility is now expected for a broad range of IT roles. Here's how to cope. **BY BETH STACKPOLE**

A COUPLE OF WEEKS into his job as lead QT developer at software development consultancy Opensoft, Louis Meadows heard a knock on his door sometime after midnight. On his doorstep was a colleague, cellphone and laptop in hand, ready to launch a Web session with the company CEO and a Japan-based technology partner to kick off the next project.

"It was a little bit of a surprise" because I had to immediately get into the conversation, but I had no problem with it because midnight here is work time in Tokyo," says Meadows, who adds that after more than three decades as a developer, he has accepted that being available 24/7 goes with the territory of IT. "It doesn't bother me — it's like living next to the train tracks. After a while, you forget the train is there."

Not every IT professional is as accepting as Meadows of the growing demand for around-the-clock accessibility, whether the commitment is as simple as fielding emails on weekends or as extreme as attending an impromptu meeting in the middle of the night. With smartphones and Web access pretty much standard fare among business professionals, people in a broad range of IT positions — not just on-call roles like help desk technician or network administrator — are expected to be an email or text message away, even during nontraditional working hours.

The results of *Computerworld's* 2014 Salary Survey confirm that the "always on" mentality is prevalent in IT. Fifty-five percent

of the 3,673 respondents said they communicate “frequently” or “very frequently” with the office in the evening, on weekends and holidays, and even when they’re on vacation.

TEKsystems reported similar findings in its “Stress & Pride” survey issued last May. According to the IT services and staffing firm, 41% of those polled said they were expected to be available 24/7 while 38% said they had to be accessible only during the traditional work hours of 8 a.m. to 6 p.m. The remaining 21% fell somewhere in between.

“Being on all the time is the new normal,” says Jason Hayman, market research manager at TEKsystems. “[Bring-your-own-device] trends and flexible work arrangements have obliterated the traditional split between work and nonwork time, and IT gets hit hard.”

The Reality of Staying Relevant

Around-the-clock accessibility is not only part of the IT job description today, it’s the reality of staying relevant in a climate where so many IT roles are outsourced overseas, according to Meadows. “Work can be done much cheaper in India, Russia or China,” he says. “So you need to be able to get things done as fast as stuff happens in other places, and many more work hours are required to make that happen. When you sign up for this job, that’s just the way it is.”

Being available may be part of the job, but demands can become onerous, notes Robert Sample, formerly a senior technical analyst with Cox Media Group. “When I started in the 1998 to 1999 time frame, a person would be on call for a week, and typically you might get one or two contacts during off hours,” says Sample, who is currently between jobs. “Over the last few years, the change has been toward immediate responsiveness and more active involvement.”

At Cox Media, Sample was issued a BlackBerry that pinged him with an email alert when a trouble ticket was started. “Our SLA [service-level agreement] specified a response within four hours no matter what,” he says. “That goal didn’t even consider whether it was [during] work hours.”

Many IT professionals say they’ve made a routine of frequent check-ins. It helps avert problems and makes the workday smoother, they say, since there often isn’t enough time during traditional hours to get everything done. That’s partly what motivates Merlyn Reeves to make herself available around the clock.

A project manager for a network communications provider, Reeves works from home. She says the need to coordinate with colleagues in different time zones means she might have to chair a conference call at 7 a.m. or respond to emails while watching *60 Minutes* on a Sunday night. She keeps her cellphone bedside so she can respond to the occasional email at night, and she works on Sundays to get a jump-start on the week.

Reeves says she doesn’t do that because her managers expect it; rather, it’s her personal work ethic that drives her. “It’s not spoken that it’s expected, and if I didn’t respond at 8 p.m. on Sunday night, no one would chastise me,” she says. “But as a project manager, I don’t ever want to be the holdup to getting something done.”

Making 24/7 Work

Work ethic aside, Reeves and other IT professionals have developed strategies for managing the “always on” requirement in the hopes of creating a modicum of work/life balance. Reeves won’t wade in on certain email discussions during off-hours, and she’s learned to take vacation during Christmas week, when many people aren’t working, so she can unplug without the stress.

Sample has also changed the way he vacations. “I’ve started taking a cruise every year,” he says. “You get a few miles offshore, and cellphones don’t work. That way, you can take a vacation and not have to worry about problems until you get back.”

Kathy McFarland, quality assurance specialist at Vanderbilt University Medical Center, makes it very clear in her voicemail message and email signature if she’s out of the office and when and how she will respond. And like Reeves, she has gotten strategic about the emails she will and won’t answer during off-hours.

“You have to try to stop the insanity somehow,” she says. “If it’s a focused question that I can answer quickly, I will respond, and that’s OK. When it’s a flurry because there are multiple people on a thread and everyone gets whipped up, I refuse to respond.”

Even with those coping strategies, she admits it’s hard to unplug. “You try to turn off when you can, but if the executive steering committee wants answers, they want them when they want them,” McFarland says. “They don’t care if it’s 5 p.m. on a Friday.”

Still, there are ways to draw the line, notes Allan Harris, a cloud architect at Partners HealthCare. While Harris regularly makes himself available during off-hours, he proactively makes sure people know how and where to seek help when he’s out of the office on planned time off with his family. More often than not, people respect his time, but there are the occasional situations where someone tracks him down on his cellphone.

“If I have an out-of-office message that specifies that someone else should be contacted, and someone calls me directly, I have a problem with that,” he says. The first thing he does is triage the problem, but he also sets boundaries. “The

problem is most important, but I do let the customer know that we’ll address the situation when I come back to the office, where we’ll talk about SLAs and the proper escalation procedures,” he explains.

The embrace of the bring-your-own-device trend among IT pros definitely contributes to the increase in calls during off-hours, says Harris. “When you give out your personal cell number, it’s kind of like a Batphone — people think they can get a personal response.”

Taking the Good With the Bad

Despite the inconveniences, IT professionals say there is an upside to the 24/7 mentality. Because people are actively working at night, in the early mornings or on weekends, there is greater flexibility to step out during the workday to run errands or spend time with the kids, especially if you can work from home.

That’s how Scott Murray, business intelligence manager at

CHECKING IN

How frequently, on average, do you check messages or communicate with your office during nonscheduled work hours such as evenings, weekends, holidays or vacation?

Very frequently	22%
Frequently	33%
Sometimes	28%
Rarely	15%
Never	2%

BASE: 3,673 RESPONDENTS

LONG HOURS

How many hours per week do you work on average?

Less than 40 hours	1%
40 hours	30%
41-45 hours	28%
46-50 hours	25%
51-60 hours	16%

BASE: 3,666 RESPONDENTS

Hospital Corporation of America (HCA), sees it. Murray, who has worked from home for six years, says he regularly emails or instant-messages with colleagues late at night or in the early morning hours, and he works some weekends to create reports tied to the monthly accounting cycle.

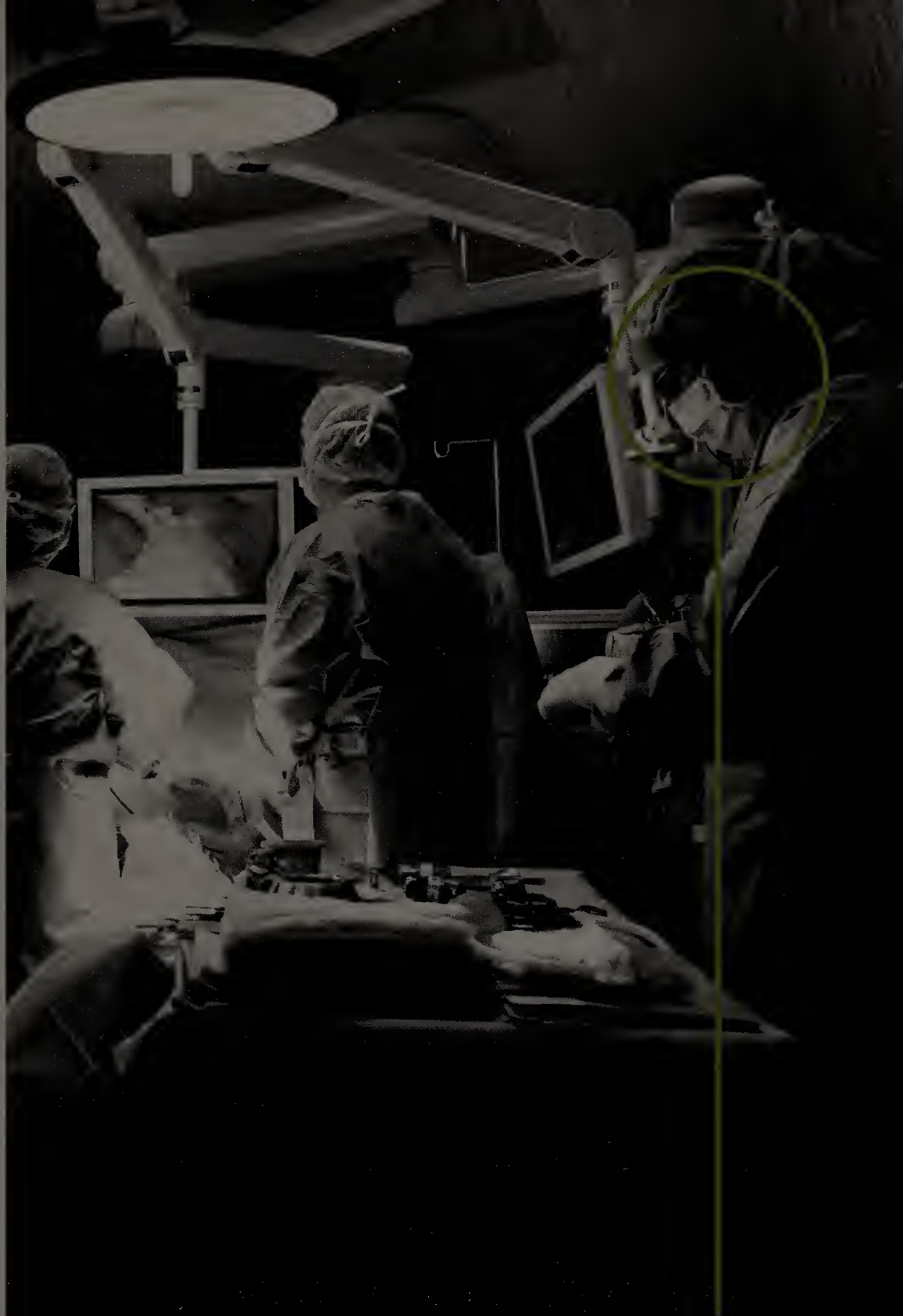
On the flip side, Murray coaches high school soccer and is out for practice from 3:45 to 5:30 p.m. every day during the season. "I feel like that's OK because I'm available on weekends and after work," he says. "If I were sitting in an office, there would be an expectation that I'd be there until 5 p.m. or later, and I couldn't do the coaching." Additionally, Murray doesn't go totally dark. "I still answer the phone at soccer practice," he says. "If something goes wrong, my boss knows he can reach me."

Establishing trust and respect helps make the "always on" culture work for both IT employees and management, says Cynthia Hamburger, CIO/COO at Learning Ally, a nonprofit dedicated to helping people with learning disabilities. Hamburger, who has been a CIO at larger companies, including Dun & Bradstreet, says it's important to protect people's personal time and publicly acknowledge them when they go beyond the call of duty. But respecting personal time doesn't necessarily mean that weekends are off-limits.

"If you are on vacation with the family, unless the house is burning down, we will not contact you," she says. But for those who aren't taking paid time off, "there is an 'always available' mentality. It goes with an IT role and, unfortunately, the digitalization of the planet has made it worse," she adds. "There is an expectation that most forms of contact are checked pretty regularly."

While Hamburger says technology has made it easier for IT professionals to stay connected, she says the idea of 24/7 access is really nothing new, particularly among those interested in advancement. "People who have been the most successful in IT have had this work ethic all along," she says. "The technology has just made us much more accessible in real time." ♦

Stackpole, a frequent Computerworld contributor, has reported on business and technology for more than 20 years.



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What Do IT Workers

WANT?

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Smart employers know the score: Take-home pay still matters, but so do company culture, praise and challenging work.

BY STEPHANIE WILKINSON

AS THE ECONOMY continues to rebound and the competition for qualified IT professionals reaches new heights, employers seeking to attract or retain staffers are increasingly becoming like anxious suitors, desperate to figure out how to please their dates: "What do you want? What will make you stay? What really matters in our relationship?"

According to *Computerworld's* 2014 IT Salary Survey, tech workers are looking for many traditional benefits of a good partnership: financial security, stability and reliability — all represented by salary and benefits. But this year's results confirm a growing trend: IT professionals are placing increasing importance on "softer" factors in the workplace, which have less to do with dollars and cents and more to do with corporate culture, personal growth and affirmation.

Over the past several years, traditional incentives like base pay, benefits and bonuses have declined in importance, while less tangible rewards like recognition for a job well done, the opportunity to work with talented people, and the knowledge that one's opinions are valued have gained ground.

To be clear, money still talks: Base pay still outranks all factors. But whereas 73% of respondents ranked pay as one of their five top concerns in the 2012 survey, just 49% did so in 2014. Benefits took a similar plunge, cited by 36% of those polled this year, down from 59% in 2012. And the percentage of respondents choosing vacation

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CHANGING PRIORITIES

What matters most to you about your job?

	2012 4,319 RESPONDENTS	2013 4,218 RESPONDENTS	2014 3,648 RESPONDENTS
Base pay	73%	68%	49%
Job stability	38%	35%	45%
Benefits	59%	54%	36%
Challenge of job/ responsibility	31%	31%	34%
Vacation time/ paid time off	40%	37%	32%
Flexible work schedule/ telecommuting	34%	32%	30%
Job atmosphere/ community	21%	22%	28%
My opinion and knowledge are valued	19%	20%	28%
Potential for career advancement/ development	21%	21%	19%
Skill development/ education/training	19%	22%	19%
Financial stability of organization	16%	16%	19%
Commuting distance/location	11%	11%	18%
Recognition for work well done	13%	13%	18%
Having the resources to do my job well	10%	10%	16%
Corporate culture and values	12%	13%	16%
Working with highly talented peers	10%	11%	14%
Working with leading- edge technology	11%	12%	12%
Effectiveness of immediate supervision	7%	7%	10%
How my work helps achieve organization goals	6%	7%	10%
Bonus opportunities	15%	15%	9%

UP TO FIVE RESPONSES ALLOWED

time declined eight points over the same period.

The biggest gainers over that span are factors that have a positive impact on quality of life (the choice of commuting distance rose seven points), the worker's sense of security (job stability made the same gain) and the work environment (job atmosphere/community, being recognized for good work and being valued for one's knowledge all rose five to seven points). Being able to work with highly talented peers and having challenging work are on the rise as well.

Why these factors, and why now?

"In our recovering economy, IT workers are growing more confident," says Shravan Goli, president of IT staffing firm Dice,

which noted the importance of intangible rewards in its own recent salary survey. "The job market is good, with a lot more jobs out there. Folks are less worried about retention. Good pay is still necessary for retaining workers, but it's no longer sufficient. These days, employees are putting a greater emphasis on career ambition and personal growth."

At the same time, the nature of IT work is shifting, demanding a different mix of skills and traits. Where it once was desirable to be a master of a particular technology, today's projects often require high degrees of collaboration, says John Reed, senior executive director of IT staffing firm Robert Half Technology. The ideal worker has a balance of tech skills and people skills, he says, so it's not surprising that workplaces where people have the opportunity to acquire or use collaboration skills are gaining favor.

Respect, Trust and Fulfillment

Marty Rosensweig has had a long and successful career in IT. Beginning as a self-proclaimed "Beltway bandit" in 1973, he worked for years at American Management Systems (AMS) in a variety of roles. He left in 2002 and now works for a technology consulting company called ECSTeam as a senior consultant. What matters most to him in his work is the chance to continually reinvent himself.

"I'm at a point in my life where I'm not looking to get promoted but to be challenged," he says. "I want to get something done. I want exciting and interesting work. I'm not really looking to make a million bucks."

Even in his earlier years, Rosensweig says, money wouldn't have been his only, or necessarily his primary, motivator. Much higher on his needs list were being recognized for his skills and having the opportunity to deploy them in the company of people he respected.

For instance, during his time at AMS, the company recognized Rosensweig for his contributions as a skilled technician — and not always with tangible rewards. "Those 'attaboys' and title promotions — they go a long way," he says.

Though a generation younger, Andy Dillbeck shares Rosensweig's views. A Web and database developer at JL Warranty, Dillbeck says the morale boosters his company dreams up create a corporate culture that has kept him content in his first job out of college. Small perks, like impromptu smoothie runs and a modest stipend for carpoolers, add up, he says. Even more important, he adds, is the feeling that others trust his skills and the understanding that the company will invest in developing them.

"I've thought about applying elsewhere, but here I'm always being encouraged to try new things," says Dillbeck, who has worked at JL Warranty for eight years. "When something goes well, when you go beyond expectations, you hear about it. I don't want to end up in a cubicle farm where nothing you do really matters."

The freedom to challenge himself, on company time, makes a difference. For instance, a few years ago when his manager saw Dillbeck's enthusiasm for the then brand-new iPhone, he encouraged him to experiment with the technology. Dillbeck made two iOS apps, just to see if he could. That sort of trust and support is compensation of a different but no less important kind, he says.

Goli equates desirable workplace traits to Abraham Maslow's theory of the hierarchy of needs, which holds that meeting basic needs leads people to seek higher and higher levels of fulfillment. In the workplace, Goli says, once an adequate level of base pay and benefits are achieved, workers are freed up to consider higher needs like cultural fit and professional growth.

"Most tech jobs pay pretty well," Goli says. "So where is the additional motivation to come from? Tech professionals in particular find fulfillment in challenge and innovative environments."

Using Culture to Compete

IT managers charged with hiring and retaining staffers need to keep softer factors in mind if they want to compete in today's labor market. A dearth of candidates in areas like big data, cloud computing, security, mobile and game development has companies competing like never before for a limited number of qualified workers, Reed says.

"Companies know that they can't just put a job description out there and expect that to be enough these days," he explains. "They have to tell the story of why, exactly, someone would want to work at their company. And the elements of that story have to include things like the creative and supportive environment that's on offer, the chance to make a difference to a company's vision, and what their company contributes to the community."

Employers aren't competing on a level playing field, Reed adds. High-profile companies like Google and LinkedIn have an easier time recruiting workers than more obscure or stodgier organizations. Public-sector employers face some of the highest obstacles.

"As a university, we know we're not always competitive with private industry on base pay. With a market this hot, it's a huge hurdle to find talent," says Tom Harney, a programmer analyst at the University of Louisville in Kentucky. "But we can sell candidates on a culture, on education benefits and a flexible work environment."

Harney himself is 15 years into his IT career. He has experience at a range of organizations, including a Fortune 500 company, a small e-learning business and a midsize finance company. Across those jobs, the defining factor in his satisfaction has always been cultural, he says.

"Every time I looked for a job, that's been important," he adds. "At times, I've felt like I was sold a bill of goods; a company promised that kind of supportive culture and then didn't deliver. I keep that in mind with the people I manage now."

Jana Canada has been working in the public sector since the late 1970s. Her current job is as a network administrator for the

Sutter County government in California. She has been caught in an unenviable position, where pay remains tight and the quality-of-life benefits are declining. A much-appreciated working schedule that included half-day Fridays was recently axed with little notice, for instance.

What's worse, Canada says, there's a creeping disregard for the skills folks like her have honed over the years — skills that are still key to the smooth functioning of the county's systems.

"Over the last five or six years, we're seeing an environment that turns its nose up at you," Canada says. "Everybody wants to be appreciated. A 'well done!' would mean a lot, especially in a situation where there hasn't been a raise for three or four years. I used to wake up and think, 'What's going to happen today?' But it's harder to sustain that motivation in this environment."

Millennial Influence

Now more than ever, companies need to be concerned with how their workplaces are perceived by outsiders, says Jack Cullen, president of IT staffing firm Modis. "Prospective employees are really selective these days, and they can find out a lot more about what's really going on at your company. [The millennial] generation especially: They want to know a lot upfront about your company's culture. They ask good questions, different questions."

Whereas older employees are likely to ask about the project at hand, younger ones ask about softer factors, and "they have the power of social media behind them," Cullen says. "If a company says it has an appreciative environment, job seekers can find out if that's true through backdoor references or online at places

like Glassdoor. Transparency is the name of the game now."

In the ongoing arms race for IT talent, the companies that prevail will make cultural changes to stay competitive to the generation now entering the workforce. As Dice's Goli sees it, "those companies that can outline a path forward for their employees — help them migrate to the next level of their growth and connect that to the work of the company — those are the ones that will do best in the employment space." ♦

Wilkinson, a Lexington, Va., writer, is the former publisher of *Brain*, *Child Magazine*.

The advertisement features a dark background with a faint image of a person's face. The text is white and yellow. At the top, it says "For deeper network security and control" in yellow, followed by "look beyond the obvious." in white. Below this, a paragraph describes Dell SonicWALL next-generation firewalls. A URL "Go deeper at: sonicwall.com/deep" is provided. The Dell logo and slogan "The power to do more" are in the bottom right. A copyright notice is at the very bottom.

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Career Watch



ASK A PREMIER 100 IT LEADER

Randall Gaboriault

The CIO at Christiana Care Health System explains how to initiate change from below.

I jumped from one big corporation to another a few months ago, gaining a new title and a chance to work with some different technology. I'm happy with the move, but I'm struck from time to time with how my old company handled some things – mostly to do with employee relations and communication, not the tech stuff – a lot better than they do here. I've mentioned a couple of things, but I don't want to be the guy who's always saying, "Things were so much better at my old job." And it's not like I have a lot of experience. My old company was my entire career until now. What's the smart way of getting attention for these sorts of issues? You've already made a key observation: self-awareness

If you have a question for one of our Premier 100 IT Leaders, send it to askaleader@computerworld.com, and watch for this column each month.

of the danger of being "that guy." Pausing and reflecting, as you have done, is step one. Not all organizations perform well on the same dimensions; this may not be a lack of maturity or ignorance, but strategic choice. Though you believe there is a need to strengthen the environment, the organization may not be ready. To initiate change, be realistic about timing. Organizations are complex, and change does not happen rapidly, unless under threat. You need to build a coalition of support and seek counsel from the person who hired you for your skills, your experience, your fit and, ideally, your potential. But don't frame comparisons; bring your thoughts forward as ideas and connect them to the goals of your new organization.

What skills and other attributes (including personality) are optimal for software QA professionals? The paramount attribute is self-evident: quality. This means having an immediate and passionate connection to getting things done right, the first time. When done well, this role enables organizations to delight their customers with solutions that meet their needs and perform as expected, in a reliable manner. But optimally, QA professionals bring more than just a robust attention to properly completing the task components of the work. They should have an intuitive grasp of the critical value created by the role, which is to elucidate and extinguish previously unseen risk. They must feel responsibility for the mission of their organization and those it serves. Finally, they should have personal accountability to not just do the work with excellence, but to also find ways to improve it.

I'm the CIO of a midsize firm, and I would like to pursue a doctoral degree. I'm worried, though, that a Ph.D. is seen as antithetical to the business environment. What do you think? You are defined by your actions and communications, both verbal and nonverbal, by whom you interact with and whom you do not, and by how you treat others and their ideas, not exclusively by your educational ranking. A Ph.D. is not at all incompatible with the business environment – the wrong behaviors are. Others may form preconceived notions based on your degree, some may digest it as an asset, others a liability. You can disarm those notions by being tactful in how you deploy your academic dexterity. Collaborate, acknowledge and leverage the strengths of others, be respectful and share credit. Never use your degree as a weapon, for example as the reason for knowing something that others do not.



There Is Such a Thing as a Free Lunch

And free gym memberships too, if you're in the right tech field. Dice.com looked through its database of job postings to elicit these listings of the top perks being offered for a selection of IT job categories.

SOFTWARE ENGINEERING

- 1 Tuition reimbursement
- 2 Gym membership
- 3 Lunch
- 4 Referral bonus
- 5 Working with latest technologies

CLOUD COMPUTING

- 1 Gym membership
- 2 Lunch
- 3 Casual environment
- 4 Tuition reimbursement
- 5 Working with latest technologies

BIG DATA

- 1 Lunch
- 2 Casual environment
- 3 Referral bonus
- 4 Tuition reimbursement
- 5 Gym membership

MOBILE DEVELOPMENT

- 1 Lunch
- 2 Gym membership
- 3 Tuition reimbursement
- 4 Working with latest technologies
- 5 Referral bonus



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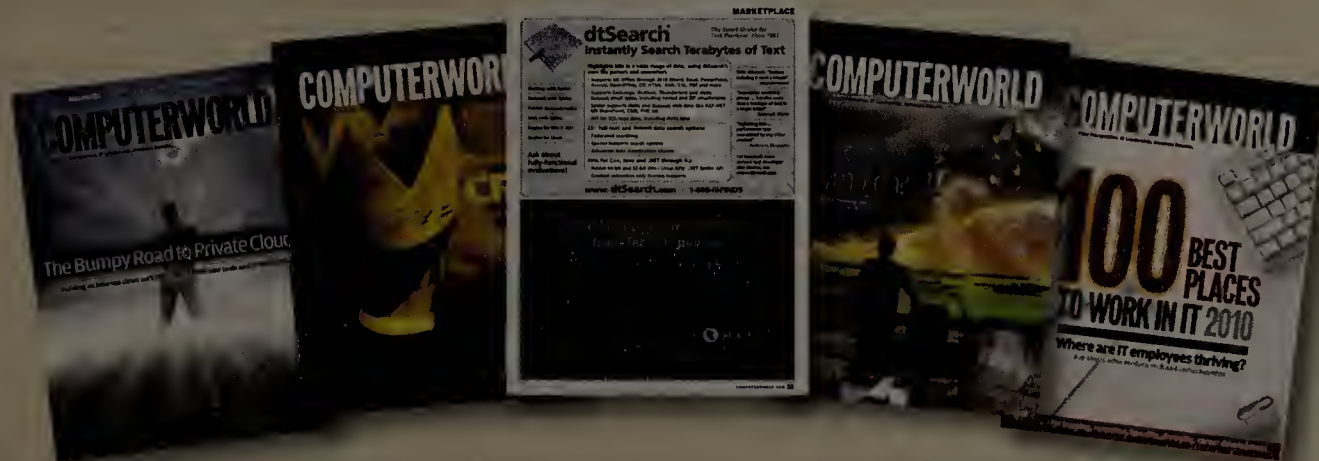
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SHARKY'S

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HAL MAYFORTH

And the New Net-30 Is ... Net-30

Internet provider uses a local mom-and-pop business to acquire PCs for tech support and operations. "Everybody was happy," says the IT director pilot fish there. "Then we got a new finance guy." One afternoon fish is informed that the latest shipment of new equipment is on the dock — but the last net-30 invoice is now months old, so it all goes back on the truck unless the driver gets a cashier's check for the full invoice amount. An hour later Mom and Pop have their check, and fish is on his way to see

the finance guy — who insists that net-60 to net-90 is the new net-30, and vendors will have to get used to it. "A few weeks later, he sent me a list of equipment purchases needed to upgrade his finance and accounting departments," fish says. "I nodded, smiled and returned the paperwork to him with an estimated installa-

tion date 11 months out. 'Hey,' I said, 'net-330 is the new net-90. You'll just have to get used to it.' After a bit of upper-level rattling and banging, we resumed paying our vendors on time."

'No Object,' Redefined

CIO informs this sysadmin that a new office is slated to open in less than

two months and the sysadmin needs to get it connected by then. Impossible, says sysadmin — it'll take 90 days to get the new circuit installed. Sure enough, when the bids come in, they all say it'll take 90 days. CIO picks a provider and asks for a revised bid. We're willing to pay anything to get the circuit put in sooner, CIO says, and cost is no object. Provider suggests using a cheap cable connection for a few months. That means paying for a year — but cost, of course, is no object. "We proceed," says a pilot fish in the loop. "Later, the CIO begins to question the costs of setting up the office connection twice, since it will have to be configured for the cable connection and then again for the Internet connection when it's installed. Apparently cost is an object again!"

Aha!

At the public library where this IT pilot fish works, there are two librarians working on each reference desk — and two phones. "Calling the reference desk should ring both phones," says fish. "I got a complaint that one of the phones was not ringing. I'd dealt with this kind of issue before at this particular reference desk, involving different users. I knew it was an easy fix, but couldn't remember the specific steps. After quickly browsing through the settings on the problem phone, I noticed that call forwarding was on. I turned it off, called the phones and everything worked like magic. I didn't bother to tell them the source of the problem. I figured we should leave *some* of the mystery in IT's job."

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PM40063731. **CANADIAN**

POSTMASTER: Please return

undeliverable copy to PO Box

1632, Windsor, Ontario N9A

7C9. Computerworld (ISSN

0010-4841) is published

twice monthly except

for the month of July by

Computerworld Inc., 492

Old Connecticut Path, Box

9171, Framingham, Mass.

01701-9171. Copyright

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Computerworld can be

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OPINION

PAUL GLEN

The Benefits of an Unstructured Career

We often make self-limiting assumptions about position, status and the need to rigidly follow a career path.

AFTER NEARLY TWO DECADES of focusing on the management side of IT, I've been writing code lately — and loving it. This wasn't a deliberate, considered career move or a midlife return to the glory days; it was merely a confluence of circumstances. In the course of

working on a client's project, it became clear that this particular work needed to be done, and there was no one else around to do it, so I dove in.

When I was less secure as a manager, I would have considered a return to coding a humiliating demotion. Instead, what I experienced felt more like a joyful homecoming. It reminded me of what had drawn me to a technical career in the first place. It also got me thinking about the transformation of the IT work landscape.

We have all read countless laments about the destruction of the traditional career path, which used to lead one steadily higher in the organization. We all know by now that job security is dead, that outsourcing has transformed the work landscape and that loyalty is now the rarest of commodities among both employers and employees. But when I found myself stepping into an old role after years of doing something else, I started to think about the upsides of today's unstructured careers and discovered several benefits that are worth noting:

Variety. It's true that you need focus to excel in your field of choice, whether that's working hands-on with technology or managing the people who do. But occasional excursions are both fun and useful. And if you are primarily a technical manager, a midcareer stint in hands-on work offers the chance to become more intimately familiar with new technologies while refreshing the experience of being on the receiving end of managerial mandates. You can then return to your regular role with renewed vigor and realism.

A sense of accomplishment. Managing other

people can be fulfilling work, but your sense of accomplishment can be ambiguous. If a manager looks in the mirror at the end of any given day and asks, "Was I successful today?" the only honest answer is, "I don't know. Check back in a couple of years." Time horizons are long, and clear-cut victories are rare. An occasional return to hands-on work offers the opportunity to feel the rush of immediate feedback that comes with unambiguous success and failure: "It compiled and gave the right answers!"

Flexibility of self-measurement. New managers often struggle with their sense of self-worth. As individual contributors, they could measure themselves by their own production. As new managers, they grapple with the demands of their new role, and it's difficult to let go of what had always been a reliable measuring stick. And their self-esteem can take a tumble when they try to apply it in their new circumstances. They can be burdened by the knowledge that they haven't written a single line of code in months. Not knowing how to evaluate their effectiveness in the new role, they decide that they must be bad at their job because they spend all of their time in meetings. Moving back and forth between roles can help you see how to switch between measuring your own productivity and your effect on the productivity of others.

Too often we make self-limiting assumptions about position, status and the need to rigidly follow an established career path. But there's a lot to be said for enjoying whatever work is right in front of you. ♦

Paul Glen, CEO of Leading Geeks, is devoted to clarifying the murky world of human emotion for people who gravitate toward concrete thinking. His newest book is *8 Steps to Restoring Client Trust: A Professional's Guide to Managing Client Conflict*. You can contact him at info@leadinggeeks.com.

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WHAT IS VISUAL HACKING AND WHY SHOULD YOU CARE?

It's probably happened to you.



Ever been on an airplane or in a coffee shop and caught someone looking at your laptop screen? That's visual hacking.

It could be your laptop, smartphone, or even paper documents. Somebody sneaks a look at something they shouldn't be seeing, and you've been visually hacked.

Visual hackers lurk everywhere.

67% of employees expose sensitive data outside the workplace.* It happens on planes and buses. In restaurants and cafés. At hotels and tradeshows. In waiting rooms and boardrooms. Anywhere sensitive information is exposed, you can bet it's seen by people who aren't supposed to. And with the boom in mobile devices, the problem will only get worse.

Here's why it matters.

Some may say, "So what?" But do you really want to find out what happens when your organization's private business becomes public knowledge? We're talking intellectual property, customer data, financial documents, personnel files, and more. Organizations spend millions on IT security but do little to prevent the display of sensitive, proprietary and confidential data in plain sight. Failing to address this vulnerability is too big a risk.



Without a visual privacy policy, your organization is exposed.

Go to StopVisualHacking.org for resources and information about establishing a visual privacy policy where you work. Do it today.



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